

**CITY OF METHUEN
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2004

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Report Summary:

Highlights

January 1, 2001

January 1, 2004

Contributions

Funding Schedule FY 2005	\$2,977,310	\$3,186,100
Funding Schedule FY 2006	3,085,098	4,966,245

Funded Ratios

GAS No. 25	74.2%	61.2%
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Participants

Actives	669	666
Inactives	58	48
Retirees and Beneficiaries	300	324
Disabilities	<u>55</u>	<u>58</u>
Total	1,082	1,096

Payroll

Payroll of Active Members	\$22,480,573	\$25,933,704
Average Payroll	33,603	38,939

Normal Cost

Employer	988,606	1,372,993
Employee	1,814,867	2,127,950
Administrative Expenses	<u>125,000</u>	<u>160,000</u>
Total	2,928,473	3,660,943

Actuarial Accrued Liabilities

Actives	50,267,846	59,765,920
Retirees, Beneficiaries, Disabilities and Inactives	<u>42,228,419</u>	<u>57,833,663</u>
Total	92,496,265	117,599,583

Actuarial Value of Assets

<u>68,625,708</u>	<u>71,932,860</u>
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Unfunded Actuarial Accrued Liabilities

\$23,870,557	\$45,666,723
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Introduction

This report presents the City of Methuen actuarial valuation findings as of January 1, 2004, under the Commonwealth of Massachusetts Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2004.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the City of Methuen Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2004.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the previous three years, the total unfunded actuarial accrued liability increased by 191.3% to \$45,666,723. The increase is the result of net unfavorable actuarial experience during the preceding years. The primary component of the unfavorable experience was an investment return less than the 8.0% assumption.

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>January 1, 2001</u>	<u>January 1, 2004</u>
Superannuation	\$1,839,927	\$2,399,215
Death	180,904	161,783
Disability	540,553	631,043
Terminations	242,089	308,903
Administrative Expenses	<u>125,000</u>	<u>160,000</u>
Total Normal Cost	2,928,473	3,660,943
% of Pay	13.0%	14.1%
Employee Contributions	1,814,867	2,127,950
% of Pay	8.1%	8.2%
Employer Normal Cost	\$1,113,606	\$1,532,993
% of Pay	5.0%	5.9%

Present Value of Actuarial Accrued Liabilities

The present value of actuarial accrued liabilities (AAL) represents today's value of all benefits earned by the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II			
		<u>January 1, 2001</u>	<u>January 1, 2004</u>
Actives			
Superannuations		\$39,090,861	\$55,428,110
Death		2,487,141	\$1,562,021
Disability		8,975,762	\$3,988,384
Terminations		(285,918)	(\$1,212,595)
Retirees and Inactives			
Retirees		30,584,192	42,983,346
Disabled Retirees		11,150,817	14,312,895
Inactives		<u>493,410</u>	<u>537,422</u>
Total		\$92,496,265	\$117,599,583

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive as well as all benefits earned and expected to be earned in the coming years by the active. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>January 1, 2001</u>	<u>January 1, 2004</u>
Actives		
Superannuation	\$56,819,218	\$79,307,757
Death	4,298,474	3,130,150
Disability	14,725,348	10,007,506
Terminations	2,359,853	1,884,311
Retirees and Inactives		
Retirees	30,584,192	42,983,346
Disabled Retirees	11,150,817	14,312,895
Inactives	<u>493,410</u>	<u>537,422</u>
Total	\$120,431,312	\$152,163,387

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>January 1, 2001</u>	<u>January 1, 2004</u>
Cash equivalents	603,726	\$593,871
Short term investments	0	0
Fixed income securities	25,220,013	20,291,305
Equities	32,492,093	34,069,866
International	6,477,887	7,132,167
Real Estate	0	4,611,367
Venture Capital	0	0
Other	3,563,641	0
Accounts receivable	1,313	0
Accounts payable	(88,780)	(50,196)
Accrued income	<u>355,815</u>	<u>0</u>
Total Market Value	\$68,625,708	\$66,648,380
Total Actuarial Value	\$68,625,708	\$71,932,860

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 20%. The calculation of the actuarial value of assets as of January 1, 2004 is presented in Table V.

	<u>January 1, 2004</u>
(1) Market value at January 1, 2003	\$56,698,356
(2) 2003 Receipts	\$4,977,572
(3) 2003 Payments	(\$6,478,315)
(4) Net interest adjustment at 8% on (1), (2), and (3) to December 31, 2003	\$4,475,840
(5) Expected market value on January 1, 2004	\$59,673,453
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2004	\$66,648,380
(7) 2003 (Gain) / Loss	(\$6,974,927)
(8) 80% of 2003 (Gain) / Loss	(\$5,579,942)
(9) 2002 (Gain) / Loss	\$10,832,654
(10) 60% of 2002 (Gain) / Loss	\$6,499,592
(11) 2001 (Gain) / Loss	\$10,293,268
(12) 40% of 2001 (Gain) / Loss	\$4,117,307
(13) 2000 (Gain) / Loss	\$1,237,613
(14) 20% of 2000 (Gain) / Loss	\$247,523
Actuarial value on January 1, 2004, (6) + (8) + (10) + (12) + (14)	
(15) but not less than 80% nor greater than 120% of (6)	\$71,932,860
Ratio of actuarial value to market value	107.93%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>January 1, 2001</u>	<u>January 1, 2004</u>
Actuarial Accrued Liability	\$92,496,265	\$117,599,583
Actuarial Assets	<u>68,625,708</u>	<u>71,932,860</u>
Unfunded Actuarial Accrued Liability	\$23,870,557	\$45,666,723
Funded Status	74.2%	61.2%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the prior unfunded actuarial accrued and 2002 ERI liability by June 30, 2025
\$ 43,041,178 over 21 years with 4.5 % increasing payments
- Level amortization of the 1992 Early Retirement Incentive unfunded liability by June 30, 2008
\$ 12,674 over 4 years
- Increasing amortization of the 2003 ERI liability and FYE 04 Appropriation Defferal by June 30, 2025
\$ 2,612,871 over 21 years with 4.5 % increasing payments
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2001</u>	<u>January 1, 2004</u>
Normal cost	\$1,113,606	\$1,532,993
Amortization payment of the accrued liability	1,454,902	1,408,663
Amortization payment of the ERI	3,543	124,169
Total cost	\$2,572,051	\$3,065,825
% of Pay	11.4%	11.8%
Fiscal 2005 cost	\$2,977,310	\$3,186,100
Fiscal 2006 cost	\$3,085,098	\$4,966,245
Fiscal 2007 cost	\$3,196,565	\$5,160,198

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 21 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 11.5% of payroll, increasing next year to 18.3%, decreasing to 16.3% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 4.0% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

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Appropriation Forecast
(amounts in thousands)

Fiscal Year Ending	Employee Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2005	\$25,934	\$2,128	\$1,593	\$1,593	\$3,186	12.3	61.2
2006	27,101	2,251	1,637	3,330	4,966	18.3	61.6
2007	28,320	2,380	1,681	3,479	5,160	18.2	63.3
2008	29,595	2,517	1,726	3,636	5,362	18.1	65.1
2009	30,926	2,661	1,772	3,795	5,567	18.0	66.8
2010	32,318	2,813	1,818	3,966	5,784	17.9	68.6
2011	33,772	2,973	1,865	4,145	6,009	17.8	70.4
2012	35,292	3,142	1,912	4,331	6,243	17.7	72.2
2013	36,880	3,321	1,960	4,526	6,486	17.6	74.0
2014	38,540	3,508	2,008	4,730	6,738	17.5	75.8
2015	40,274	3,706	2,057	4,943	6,999	17.4	77.6
2016	42,087	3,915	2,105	5,165	7,270	17.3	79.5
2017	43,980	4,135	2,155	5,397	7,552	17.2	81.3
2018	45,960	4,367	2,204	5,640	7,844	17.1	83.2
2019	48,028	4,612	2,253	5,894	8,147	17.0	85.2
2020	50,189	4,869	2,303	6,159	8,462	16.9	87.2
2021	52,448	5,141	2,352	6,436	8,788	16.8	89.2
2022	54,808	5,427	2,401	6,726	9,127	16.7	91.3
2023	57,274	5,728	2,450	7,029	9,478	16.5	93.4
2024	59,851	6,046	2,498	7,345	9,843	16.4	95.5
2025	62,545	6,380	2,545	7,676	10,221	16.3	97.7
2026	65,359	6,732	2,592	0	2,592	4.0	100.0
2027	68,300	7,103	2,638	0	2,638	3.9	100.0
2028	71,374	7,494	2,683	0	2,683	3.8	100.0
2029	74,586	7,831	2,803	0	2,803	3.8	100.0
2030	77,942	8,184	2,929	0	2,929	3.8	100.0
2031	81,449	8,552	3,061	0	3,061	3.8	100.0
2032	85,115	8,937	3,199	0	3,199	3.8	100.0
2033	88,945	9,339	3,343	0	3,343	3.8	100.0
2034	92,947	9,759	3,493	0	3,493	3.8	100.0
2035	97,130	10,199	3,651	0	3,651	3.8	100.0
2036	101,501	10,658	3,815	0	3,815	3.8	100.0

* Calendar basis

** As of beginning of the Fiscal Year

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GAS No. 25 and GAS No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VIII.

Table VIII

	<u>January 1, 2001</u>	<u>January 1, 2004</u>
(1) Actuarial Accrued Liability	\$92,496,265	\$117,599,583
(2) Actuarial Value of Assets	<u>68,625,708</u>	<u>71,932,860</u>
(3) Unfunded Actuarial Accrued Liability	23,870,557	45,666,723
(4) Funded Ratio (2)/(1)	74.2%	61.2%
(5) Covered Payroll	\$22,480,573	\$25,933,704
(6) UAAL as a percentage of payroll: (3)/(5)	106.2%	176.1%
(7) Annual Required Contribution (ARC)	\$2,674,933	\$3,186,100
(8) Net Pension Obligation	\$0	\$0

PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Mellon Human Resources & Investor Solutions as of January 1, 2004.

The normal cost for employees on that date was:	\$2,127,950	8.2% of pay
The normal cost for the employer was:	1,372,993	5.3% of pay
 The actuarial liability for active members was:		\$59,765,920
The actuarial liability for retired members was:		57,833,663
Total actuarial accrued liability:		117,599,583
System assets as of that date:		71,932,860
Unfunded actuarial accrued liability:		\$45,666,723
 The ratio of system's assets to total actuarial liability was		61.2%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.0%
Rate of Salary Increase:	5.0%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/c
01/01/03	\$71,932,860	\$117,599,583	\$45,666,723	61.2%	\$25,933,704	176.1%
01/01/01	68,625,708	92,496,265	23,870,557	74.2%	22,480,573	106.2%
01/01/97	42,617,519	66,863,478	24,245,959	63.7%	16,295,087	148.8%
01/01/96	37,886,763	58,261,376	20,374,613	65.0%	15,520,687	131.3%
01/01/93	25,970,674	45,965,677	19,995,003	56.5%	14,905,887	134.1%

Attach Copy of Current Approved Funding Schedule

EXHIBITS

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Age/Service Distribution with Salary as of January 1, 2004

Attained Age	Average Salary	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	1	0	0	0	0	0	0	0	0	0	1
	18,726	0	0	0	0	0	0	0	0	0	18,726
20-24	15	0	0	0	0	0	0	0	0	0	15
	25,814	0	0	0	0	0	0	0	0	0	25,814
25-29	28	6	1	0	0	0	0	0	0	0	35
	37,437	39,992	37,759	0	0	0	0	0	0	0	37,885
30-34	35	31	6	1	0	0	0	0	0	0	73
	31,094	47,063	49,308	16,185	0	0	0	0	0	0	39,168
35-39	33	32	21	4	0	0	0	0	0	0	90
	27,188	46,161	52,092	60,901	0	0	0	0	0	0	41,243
40-44	32	23	10	26	5	0	0	0	0	0	96
	23,220	27,226	51,149	56,031	50,104	0	0	0	0	0	37,376
45-49	37	17	16	24	22	4	0	0	0	0	120
	26,013	26,862	32,454	49,395	56,726	64,622	0	0	0	0	38,586
50-54	20	18	12	16	12	16	7	0	0	0	101
	27,535	30,519	24,802	38,370	50,087	56,567	69,865	0	0	0	39,671
55-59	9	14	10	18	6	13	11	0	0	0	81
	32,942	36,156	31,365	37,864	39,869	58,249	65,375	0	0	0	43,376
60-64	10	3	6	11	1	4	6	1	0	0	42
	24,625	46,122	27,403	28,957	16,969	39,194	54,268	98,485	0	0	34,890
65-69	0	0	2	2	1	2	1	0	0	0	8
	0	0	16,156	31,339	50,780	46,021	67,217	0	0	0	38,129
70+	0	0	3	0	0	1	0	0	0	0	4
	0	0	26,187	0	0	43,080	0	0	0	0	30,410
Total Employees	220	144	87	102	47	40	25	1	-	-	666
Average Salary	28,357	37,867	38,447	44,890	51,202	55,317	64,040	98,485	-	-	38,940

Retiree Distribution as of January 1, 2004

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	2	0	2	34,168	0	34,168
50-54	2	2	4	151,261	9,287	160,548
55-59	12	2	14	410,259	6,475	416,734
60-64	22	22	44	637,261	178,285	815,546
65-69	34	29	63	685,584	343,048	1,028,632
70-74	35	22	57	676,575	217,698	894,273
75-79	28	21	49	410,281	218,059	628,340
80-84	31	18	49	376,912	212,807	589,719
85-89	24	8	32	196,890	44,253	241,144
90-94	4	5	9	67,016	16,841	83,856
95-99	1	0	1	8,729	0	8,729
Total	195	129	324	3,654,938	1,246,753	4,901,690
Average (Age/Payment)	73.6	73.1	73.4	18,743	9,665	15,129
Frequency Percent	60.2	39.8	100	74.6	25.4	100

Disabled Retiree Distribution as of January 1, 2004

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	3	0	3	69,946	0	69,946
40-44	2	0	2	36,863	0	36,863
45-49	2	1	3	57,147	19,391	76,537
50-54	4	1	5	101,301	21,041	122,343
55-59	12	0	12	357,327	0	357,327
60-64	9	1	10	258,849	20,777	279,626
65-69	8	0	8	234,692	0	234,692
70-74	6	2	8	105,839	21,120	126,959
75-79	2	0	2	30,022	0	30,022
80-84	3	0	3	65,554	0	65,554
85-89	2	0	2	17,345	0	17,345
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	53	5	58	1,334,887	82,329	1,417,216
Average (Age/Payment)	62	62.1	62	25,187	16,466	24,435
Frequency Percent	91.4	8.6	100	94.2	5.8	100

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2004	\$6,432	\$2,128	\$3,186	\$5,625	\$4,507
2005	6,775	2,251	4,966	6,044	6,486
2006	7,127	2,380	5,160	6,559	6,972
2007	7,512	2,517	5,362	7,112	7,479
2008	7,896	2,661	5,567	7,705	8,037
2009	8,314	2,813	5,784	8,343	8,626
2010	8,809	2,973	6,009	9,026	9,199
2011	9,326	3,142	6,243	9,754	9,813
2012	9,885	3,321	6,486	10,531	10,453
2013	10,454	3,508	6,738	11,358	11,150
2014	11,039	3,706	6,999	12,242	11,908
2015	11,689	3,915	7,270	13,184	12,680
2016	12,316	4,135	7,552	14,190	13,561
2017	12,990	4,367	7,844	15,266	14,487
2018	13,669	4,612	8,147	16,416	15,506
2019	14,354	4,869	8,462	17,648	16,625
2020	15,048	5,141	8,788	18,970	17,851
2021	15,763	5,427	9,127	20,390	19,181
2022	16,452	5,728	9,478	21,919	20,673
2023	17,165	6,046	9,843	23,568	22,292
2024	17,853	6,380	10,221	25,348	24,096
2025	18,556	6,732	2,592	26,958	17,726
2026	19,192	7,103	2,638	28,363	18,912
2027	19,792	7,494	2,683	29,865	20,250
2028	20,338	7,831	2,803	31,474	21,770
2029	20,813	8,184	2,929	33,208	23,508
2030	21,250	8,552	3,061	35,082	25,445
2031	21,646	8,937	3,199	37,114	27,604
2032	21,945	9,339	3,343	39,323	30,060
2033	22,682	9,759	3,493	41,712	32,282

amounts in thousands

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2004, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees for the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

3. **Salary**

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

5. **Average Salary**

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

6. **Creditable Service**

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. **Service Retirement**

a. **Eligibility:**

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service
- (iv) if an employee is a State Police officer (Group 3), attainment of age 50

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For Group 3 (State Police), the benefit is 50% of the participant's final year's rate of regular salary, plus an additional 1% for each year of service in excess of 20 years. In addition, for veterans (all groups) there is an additional benefit of \$15 per year for each year of service, up to a maximum of 20 years of service.

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. **Member Data**

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. **Valuation Date**

January 1, 2004.

3. **Actuarial Cost Method**

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. **Rate of Investment Return**

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.0% per annum.

5. **Salary Scale**

It is assumed that salaries including longevity will increase at a rate of 5.0% per year.

6. **Cost-of-Living Increases**

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$12,000 per year.

7. **Value of Investments**

Assets held by the fund are valued at market value as reported by the Public Employees'

Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of unrealized gains and losses.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both preretirement and postretirement mortality are represented by the RP-2000 Mortality Table for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

12. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2004 is \$160,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. **Actuarial Accrued Liability**

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. **Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. **Actuarial Cost Method**

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. **Actuarial Present Value**

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. **Forecast**

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the City of Methuen Contributory Retirement System contributing as of January 1, 2004, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost is reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Mellon Human Resources and Investor Solutions

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 99-4086

October 2004

BREAKOUTS

Breakouts

	<u>Total</u>	<u>All Others</u>	<u>School Department</u>	<u>Methuen Housing Authority</u>
(1) Payroll of Active Participants	25,933,704	\$18,640,453	\$6,532,012	\$761,239
Percent of Total Payroll	100.00%	71.87%	25.19%	2.94%
(2) Total Employer Contributions				
(a) ERI	124,169	96,156	24,470	3,543
(b) Remaining Amortizations	1,408,663	1,012,406	354,842	41,415
(c) Employer Normal Cost	1,372,993	986,770	345,857	40,366
(d) Administrative Expenses	160,000	114,992	40,304	4,704
(e) Total	3,065,826	2,210,325	765,473	90,028
(3) Fiscal 2006 Appropriation	4,966,245	\$3,580,715	\$1,245,361	\$140,169
Percent of Total Appropriation	100.00%	72.10%	25.08%	2.82%
(5) Fiscal 2007 Appropriation	5,160,198	\$3,720,740	\$1,294,004	\$145,454
Percent of Total Appropriation	100.00%	72.10%	25.08%	2.82%
(6) Fiscal 2008 Appropriation	5,361,557	\$3,866,116	\$1,344,504	\$150,937
Percent of Total Appropriation	100.00%	72.10%	25.08%	2.82%

Appropriations are allocated based on the ratio of the division payroll to the total payroll.